

# Hacettepe University

## Computer Science and Engineering Department

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Course : BBM104 - Introduction to Programming Lab II  
Experiment : Programming Assignment III  
Subject : Polymorphism and Abstract Classes  
Data Due : 20.04.2016  
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Main Program : JAVA

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## 2. Software Using Documentantation

### Software Usage

First of all need to read 2 json file and 1 text file which are list.json property.json and command.txt. Then i created one abstract class that name is Rules . Rules abstract class include some method. That method used subclass of Rules. Also that methods help us calculate game rules. After i read command text and move on by command and obey rules i write the players status to text file which text file name is output.txt.

### ErrorMessages

In my code used three try-catch block. If there is any argument it said "`java.nio.file.NoSuchFileException: command.txt`". We can fix that define argument. Go Run Configurations after write command.txt in Program arguments part. But project's src folder must contain command.txt text file and include commands which players act according to these commands. If there is any property.json file it said "`java.io.FileNotFoundException: property.json`". We can fix that create property.json file that must be suitable monopoly standarts and project's file this property.json file. If there is any list.json file it said "`java.io.FileNotFoundException: list.json`". We can fix that like property.json file error solution. Also code has IOException and org.json.simple.parser.ParseException but we already have read files and library when we submit assignment.

### In Read class

```
<ErrorNumber 1> : <FileNotFoundException>
<In 102. line>    <Input file does not exist>
                  <Back to the src file and define property.json file>

<ErrorNumber 2> : <FileNotFoundException>
<In 142. line>    <Input file does not exist>
                  <Back to the src file and define list.json file>

<ErrorNumber 3> : <IOException>
<In 166. line>    < Input file does not exist >
                  < Back to the code and define arguments>
```

### 3. Software Design Notes

#### Description of the Program

##### Problem

In this assignment I have to develop a program to implement the monopoly game with the given rules by using polymorphism and abstract classes. Every time a player lands on a square, player takes a different action if this square is one of the properties. For the other squares, the player takes different action depend on the type of the square. When program was running uses three input files.

##### Solution

First of all we take arguments which are property.json, list.json and command.txt then read them. They are our inputs. After that eliminate the inputs according to command, properties, chance and community chest I started to define rules which are written 3rdAssignment.pdf. When I define rules I created Rules abstract class and Player1, Player2, Banker class also extends Rules abstract class in that way every Rules methods include Rules subclass. For example I define buy method in Rules class. If Player1 buy any property Player1's money decrease but Banker's money increase. I also recorded the movements of the players on each move. Finally I collect and write all of them output.txt file.

Its advantage is find correct output but if number of player is more than two code collapse. I think this is disadvantage of that solution.

##### Algorithm

1. Make initialisation
  - 1.1 Open json files and command.txt and read them.
  - 1.2 Create landList, railroadList, chanceList, companyList, communitychestList and send suitable elements to list.
  - 1.3 After read command.txt send command to commandList
2. Create abstract class which name Rules
  - 2.1 Define methods in Rules which will use in subclass.
  - 2.2 Define subclass which names are Player1, Player2, Banker.
  - 2.3 Define body part of methods in subclass.
3. Create class Game
  - 3.1 Use created objects of subclass and Rules methods in game loop
  - 3.2 Define some methods in Game class that methods ensure the continuation of the game and record every step of game to step list.
  - 3.3 If the game finish, write records in step list to command.txt file

## Special Design Properties

I can not think other solution with details but it can be written using inheritance may be written with using more less class. It can be written without using abstract class.

## 4. Software Testing Notes

### Bugs and Software Reliability

There is no bug in my code as far as I can see and try. I try every example in piazza and my code was working properly. I am not sure about "player 1 vs player 2 draws" situation because this condition is very complex. The second point I am not sure is every pass to GO banker pay to player 200. I think if position - dice <= 0 && position != 11 (Jail) player take money but maybe it crush some condition which I don't know. Also when I read files I see "â€" situation and I have to remove "â€" character so I used replace and solved it.

### Comments

I think this project not flexible for example because game for only two players. It may play more than two player like real monopoly . Another confusing point is all players money and banker money are constant what if want to change that ? so some variable may be taken with using scanner.

## 5. References

1. <http://stackoverflow.com/>
2. <https://en.wikipedia.org/wiki/Javadoc>
3. <http://beginnersbook.com/>
4. <http://www.tutorialspoint.com/>
5. <http://www.java2s.com/>
6. <https://docs.oracle.com>